5. On the Mammals of Asia Minor.—Part II. By Charles G. Danford, F.Z.S., and Edward R. Alston, F.L.S., F.Z.S.

[Received February 2, 1880.]

(Plate V.)

Three years ago we gave an account of the species of Mammals observed and collected by Danford during a visit to Asia Minor in the winter and spring of 1875–76, incorporating the statements of the few previous writers on the fauna of that country[1]. The following pages contain the additional information which he obtained during another visit in the winter of 1878–79.

On this second expedition Danford spent most of his time in the extreme south-eastern provinces of Asia Minor. The principal stations where he collected were:—the island of Rhodes; the eastern Taurus Mountains near Marash; the valley of the river Pyramus or Jíhan, in the provinces of Marash and Adana; the Giaour-Dagh, a northern continuation of the Lebanon range; and the valley of the river Euphrates, at Biledjik. Thence his route took him through part of the Palanga Plain near Albistan, and the Anti-Taurus Mountains, over the central tableland of Asia Minor by Kaisariyeh, Angora, Sivre-Hissar and Eski-Shehir, to Broussa, near the Sea of Marmora[2].

Although, as on his former trip, the time spent by Danford in the country was limited to the colder months, still we are able to add *eleven* species to our previous list, of which *one* appears to be new to science. We believe, on the other hand, that *three* species of our first catalogue were wrongly identified; and we now recognize *forty-six* species as being certainly represented in the fauna of Asia Minor, besides nine or ten others of which the occurrence, though recorded, is not fully authenticated. Much still remains to be done by future explorers, especially among the Bats, Insectivores, and Rodents.

As in our previous communication, the species of which specimens were brought home by Danford are marked with an asterisk; while those of which the evidence of occurrence seems doubtful are not numbered and are enclosed in brackets. References are given to our former paper, and the species which were not included in it are indicated by a dagger mark. The same authorities have been consulted as to distribution of the species in the adjoining countries.

We must express our thanks to our friends Dr. Günther and Mr. Thomas of the British Museum, where most of the specimens described have been deposited, and to Professor Alphonse Milne-Edwards of Paris for assistance; also to Dr. Strauch of St. Petersburgh, who has kindly given us much information as to the Wild Sheep of South-western Asia.

1. *Vesperugo serotinus (Schreb.). Danf. & Alst., no. 1.

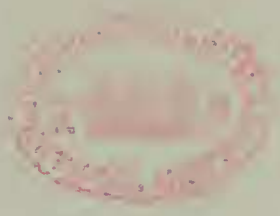
[1] P. Z. S. 1877, pp. 270–281, pl. xxxi.

[2] A map, showing Danford's routes in his two expeditions, is given in his "Further Contribution to the Ornithology of Asia Minor," Ibis, 1880, p. 81, pl. ii.

J. Smit imp.

Hanhart imp

ARVICOLA GUENTHERI.



2. *†Vesperugo kuhli (Natt.).

Specimens of Kuhl's Bat were taken at Marash from the woodwork of a house, and others were shot at Room Kaleh on the Euphrates. The species appeared to be common in both localities.

3. *Crocidura leucodon (Herm.). D. & A., no. 2.

4. Erinaceus europæus, Linn. D. & A., no. 3.

As on his former visit, Danford failed to obtain specimens of the Asia-Minor Hedgehog in a fit state for preservation; but he found one or two decomposing carcasses which were evidently referable to this species.

[Felis uncia, Schreb. D. & A., no. 4.

We introduced the Ounce into our first list on the authority of our friend Mr. D. G. Elliot, who informed us that the type of Valenciennes's *Felis tulliana*, now in the Paris Museum, was not separable from *F. uncia*, an opinion which had been already expressed by Blyth[1] and by Gray[2]. Mr. Elliot has since maintained this identification in his magnificent work on this family[3], whereas Prof. A. Milne-Edwards regards *F. tulliana* as a distinct species[4]. We regret that we did not ourselves examine the specimen when we were last in Paris; but on finding that the Leopards obtained by Danford on his second expedition were undoubtedly referable to *F. pardus*, we have been led to a more careful comparison of M. Milne-Edwards's detailed description with M. de Tchihatcheff's plate[5]. This examination leaves no doubt on our minds that Valenciennes's specimen is perfectly distinct from *F. uncia*; and we believe that it is really nothing but an unusually pale and long-haired variety of *F. pardus*, somewhat similar to the remarkable Persian Leopards now living in the Society's Gardens[6]. We therefore greatly regret that we should have been led to endorse the existence in Asia Minor of the true Ounce—an animal whose range is probably entirely confined to the most elevated regions of Central Asia[7].]

5. *†Felis pardus, Linn. *Kaplan.*

As already stated the only Leopards obtained by Danford belonged to this species; the specimens he preserved present considerable variety in coloration and in proportional length of tail, but not greater than has been observed in other localities. Though nowhere common, the *Kaplan* appears to be generally distributed throughout

[1] P. Z. S. 1863, p. 183. [2] *Op. cit.* 1867, p. 262.
[3] Monogr. Felidæ, pt. 2. [4] Recherches Hist. Nat, Mamm. p. 214.
[5] Asie Mineure, 2me partie, Zool. pl. i. [6] *Cf.* P. Z. S. 1878, p. 289.
[7] Since the above went to press we have received a letter from M. Milne-Edwards, in which he says "Le *Felis tulliana*, par les proportions de ses membres, se rapproche beaucoup plus des Panthères véritables que des Onces; les taches de la robe sont plus grandes et plus annulaires, mais elles sont plus nombreuses que chez l'Once. Je suis persuadé que le *Felis tulliana* est une *espèce*, ou au moins une *race* fortement caractérisée, du Panthère." Impressed as we are with the great variability shown by many other of the Asia-Minor Mammals, we are still of the opinion expressed above.

the south and south-western mountains near the coast. An adult female specimen, the skeleton of which is now in the British Museum, was procured in the Giaour Dagh near Osmanieh on the 20th Jan.; it measured in the flesh :—

	inches.
Length of head and body	59
Length of tail	37
Height at shoulder	26

6. *Felis catus, Linn. *Yaban-kedi.* D. & A., no. 5.

A Wild Cat from the mountains near Marash is strikingly different from the Zebil specimens described in our previous paper. Instead of being of an unusually clear grey ground-colour, marked with distinct dark spots, the present example is very tawny in general tint, faintly but regularly brindled with a darker rufous-grey. There is a distinct black stripe along the upper surface of the tail, the rings of which are imperfect and interrupted, excepting those near the tip. The Asia-Minor Wild Cats would thus appear to be much more variable in coloration than any European specimens which we have examined.

7. *†Felis chaus, Güld.

This species appears to be tolerably common near Marash, where it inhabits the marshy districts known as the Plain of Bazardjik; skins from this locality do not appear to differ in any way from North-African specimens. The Booted Cat is also found in Southern Persia and in Palestine.

8. *Felis lynx, Linn. D. & A., p. 272.

In our first paper we introduced the *F. lynx* doubtfully, on the strength of a skin purchased in Constantinople. Last year Danford obtained a very fine specimen from the mountains near Albistan, thus proving that the ranges of the Northern and South-European Lynxes meet in Asia Minor. The Albistan skin differs much from the Constantinople one, which was only obscurely spotted. Its ground-colour above is a beautiful silvery rufous, the longer hairs being largely tipped with white; and it is marked with numerous jet-black spots, which are linear in shape on the back and rounded on the flanks; on the thighs the spots show an inclination to group themselves into rosettes, like those of the Leopard.

9. *Felis pardina, Temm. *Ushek.* D. & A., no. 6.

10. *Felis caracal, Linn. *Kara-koulak.* D. & A., no. 7.

[*†Felis jubata, Schreb.

A skin of the Cheetah was presented to Danford at Biledjik, on the Euphrates, by his host Sheik Mustapha, who stated that the animal had been killed among the rocks near Sevi, a small village about five hours down the river on the Mesopotamian side; it was the only specimen which he had ever seen. This Society has received

more than one specimen from Syria, and it is not improbable that the species may be found in some parts of Asia Minor proper. Sheik Mustapha also informed him that five years ago a Lion appeared near Biledjik, and after destroying many horses was done to death.]

11. *Hyæna striata, Zimm. *Zyrtlan.* D. & A., no. 8.

Not rare in the Euphrates valley, near Biledjik, where the natives assert that it understands Arabic and may be taken in the following way:—A man crawls into its den with a noosed rope, and stroking the Hyæna, caressingly says, "You are very nice and pretty and quite like a Lion, indeed you are a Lion." This so flatters the Hyæna that he allows the rope to be put round his neck, and is forthwith dragged out.

[Genetta vulgaris, Less. D. & A., p. 273.

No further evidence of the supposed occurrence of the Gennet was obtained.]

12. *Herpestes ichneumon (Linn.). *Yer kiopek.* D. & A., no. 9.

Ichneumons were very common in the Pyramus valley.

13. *Canis lupus, Linn. *Kurt, Yanovar.* D. & A., no. 10.

Wolves were seen in the Anti-Taurus.

14. *Canis aureus, Linn. *Schakal.* D. & A., no. 11.

Jackals were very abundant at Adana.

15. *Canis vulpes, Linn. *Telki.* D. & A., no. 12.

In our previous communication we doubtfully identified an imperfect skin of a Fox as representing a pale long-haired race of *C. vulpes*. A second specimen, from Marash, is darker, and redder above and rather whiter below; the brush has a rudimentary white "tag;" and the fore legs are blackish, with hardly a trace of rufous. The size is small; but, the skull and long bones being unfortunately wanting, we cannot give measurements. After careful comparison we can find no characters by which it can be separated from some South-European specimens of *C. vulpes*.

16. *Meles taxus (Schreb.). *Porsook.* D. & A., no. 13.

[Ictonyx zorilla (Thunb.). D. & A., p. 274.

As on his former expedition, Danford did not meet with the Zorille.]

17. *Martes foina (Erxl.). *Samsar.* D. & A., no. 14.

Appears to be very common on the hills near Marash, as a great number of fine skins are exposed in the hazaar. Among these no examples of *M. sylvatica* were observed.

18. *Mustela vulgaris, Erxl. D. & A., no. 15.

19. †Mustela sarmatica, Pall. D. & A., p. 275.

Of this species, which we formerly introduced doubtfully on the

authorities of Ainsworth and Kotschy, skins were seen in the bazaar at Marash which came from Zeitoun, where they are said to be numerous and very destructive to the orchards.

20. *Lutra vulgaris, Erxl. *Su-itti, Kundush.* D. & A., no. 16.

21. *Ursus arctos, Linn. *Aiyee.* D. & A., no. 17.

22. Ursus syriacus, Ehrenb. *Aiyee.* D. & A., no. 18.

[Phoca, sp.? D. & A., p. 275.]

23. *Sus scrofa, Linn. *Domooz, Yaban-domooz.* D. & A., no. 19.

24. *Cervus elaphus, Linn. *Süyün.* D. & A., no. 20.

We are inclined to think that the Red Deer does not now exist in the Taurus proper; but it still lingers in the Anti-Taurus, where, however, it is fast dying out, perhaps owing to the advent of great numbers of Circassians. Large heads of recently-killed animals were brought to Danford, and he was well assured of their present existence. These wild and thinly-populated mountains, abounding in high grassy meadows and forests of juniper and other trees, are well fitted to be the last refuge of the Red Deer of these regions. In the northern districts of Asia Minor *C. elaphus* is much commoner; and we believe that it is found throughout the whole range of wooded hills bordering the Black Sea and the west coast at least as far as Broussa, where Danford was shown skins which indicated the great size which this animal attains in the forests of Olympus. All the heads which we have seen from the Anti-Taurus are peculiar in having the brow and bay tines united at the base, and appearing like the bifurcation of one branch.

[At the village of Jarpuz, at the foot of the Bimboghas Mountains near Albistan, Danford obtained from a peasant a very remarkable Deer's antler, in either a subfossil or a greatly weathered condition; and he saw another similar specimen in the same locality. When he exhibited this antler at a meeting of the Society last year[1] there was some difference of opinion as to whether it was or was not an abnormal specimen of *Cervus elaphus*; but as we are ourselves strongly of opinion that it cannot be referred to any known recent Deer, we reserve its description for another opportunity.]

25. *Cervus dama, Linn. *Yamoorcha.* D. & A., no. 21.

In the central pine-wooded districts of Rhodes wild Fallow Deer are not uncommon; but the animals appear to be rather small, as might be expected from their insulated range. The following are the measurements of a buck, of about four years old, killed at Laerma in Rhodes on the 22nd December, 1878:—

	inches.
Length of head and body	48·00
„ tail, with hair	14·00
„ caudal vertebræ.....	9·00

[1] P. Z. S. 1879, p. 552.

	inches.
Length of head	12·50
„ ear	6·50
„ of antlers along curve	18·50
Span of antlers	16·00

The general colour of this specimen was a dark greyish brown above with a darker line running along the back; the legs were fawn-coloured, and the belly pure white.

Both in Rhodes and on the mainland the wild Fallow Deer show but faint traces of the white spots which are so characteristic of the park breed. In the former locality the form of the antlers is very constant; but a series collected in the Giaour Dagh are of very irregular shapes, extra points being commonly thrown out on the beam, and the palmation being very much less marked than in the normal type.

26. *Capreolus capræa, Gray. *Karadja.* D. & A., no. 22.

Appears to be very rare in the south, though occurring in the Giaour Dagh and in the neighbouring portions of the Taurus range.

27. *Gazella dorcas (Linn.) *Jairan.* D & A., no. 23.

Common all along the valley of the Pyramus, on the Plain of Bazardjik, the stony oak-wooded uplands on the right bank of the Euphrates, and in many other localities. Another Gazelle, which was reported to Danford as being found on the banks of the latter river, will probably prove to be *G. subgutturosa*.

28. *Capra ægagrus, Gmel. *Kayeek.* D. & A., no. 24.

29. *Ovis gmelini, Blyth. *Kotch, Yaban-köyun.* D. & A., no. 25.

Dr. Alexander Strauch, Director of the Zoological Museum of the Imperial Academy of St. Petersburg, visited London in 1878, principally to examine the specimens of the genus *Ovis* in the British Museum, a group which he has made a special object of study. He was much struck with the form of the horns of a Cilician Wild Sheep's skeleton, obtained by Danford on his first expedition, and identified by us as *O. gmelini*. These horns Dr. Strauch considered to be so peculiar as to indicate specific distinction from both the Armenian *O. gmelini* and the Cyprian *O. ophion*; and, at his suggestion, we have been led to reconsider the question of its identity.

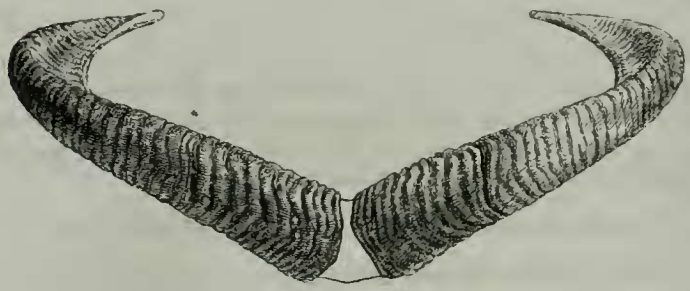
On comparing the horns of the skeleton in question, that of an adolescent male (figs. 3, 6), with those of the types of Blyth's *O. gmelini*, also in the national collection (figs. 1, 4), the differences are, indeed, so striking that it is difficult to believe that the animals can belong to the same species. In the Cilician Sheep the terminal portion of the horns are bent boldly upwards, so that their curves strongly resemble those of *O. ophion*. Their sculpture is large but ill-defined, the fronto-nuchal and fronto-orbital edges[1] are well marked but rounded; and both the orbital and nuchal surfaces are flat at the base and then slightly *concave*.

[1] We employ these terms as defined by Sir Victor and Mr. Basil Brooke, P. Z. S. 1875, p. 511.

Fig. 1.

Ovis gmelini, from Erzeroom (specimen *b* in list); front view.

Fig. 2.

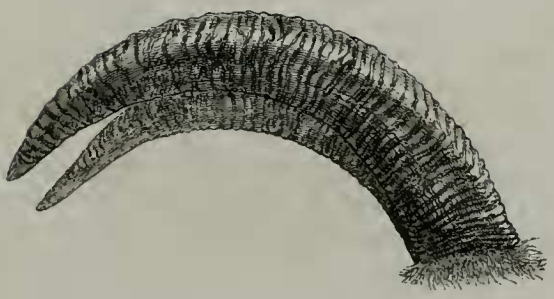


Ovis gmelini, from the Cilician Taurus (specimen *c* in list); front view.

Fig. 3.

Ovis gmelini, from the Cilician Taurus (specimen *c* in list); front view.

Fig. 4.



Ovis gmelini, from Erzeroom (specimen *b* in list); side view.

Fig. 5.

Ovis gmelini, from the Cilician Taurus (specimen *c* in list); side view.

Fig. 6.

Ovis gmelini, from the Cilician Taurus (specimen *c* in list); side view.

But on examining two other pairs of horns from the same locality, in Danford's own collection, we find that they do not present the peculiarities of the British-Museum skeleton, but agree excellently with Blyth's type. In these horns (one pair of which are represented in figs. 2, 5) the terminal portion is only gently bent upwards, the sculpture is small and sharp, the fronto-orbital edge is not distinct, except at the base, and the orbital surface is strongly *convex* throughout, so that towards the middle of the horn it runs almost insensibly into the frontal surface.

As it is hardly possible that two closely allied species should be found together on the Cilician Taurus, the above comparisons appear to us to be of some importance, as illustrating the wide range of variation in the form of the horns in one species of Wild Sheep, and the consequent necessity of examining a large series of specimens of such animals before deciding as to their specific identity. When such series are available from different localities, we suspect that some of the recently described new species will prove to have been founded on individual varieties. With a view to contributing to such material, we have had the accompanying figures prepared, and have drawn up the following list of the specimens examined, with a table of their principal measurements.

a. An enormous head in the British Museum, presented by Mr. W. Burckhart Barker, and *said* to be from "an island in the Mediterranean" (!).

b. Skin with horns. Erzeroom, Dickson and Ross, in the British Museum. One of the types of Blyth's *O. gmelini*, the others being a ewe and a lamb (figs. 1, 4, pp. 56, 57).

c. Horns, Cilician Taurus, in Danford's collection (figs. 2, 5, pp. 56, 57).

d. Horns, Cilician Taurus, in Danford's collection.

e. Skeleton, Cilician Taurus, Danford, in British Museum (figs. 3, 6, pp. 56, 57).

Measurements.	*a*.	*b*.	*c*.	*d*.	*e*.
	in.	in.	in.	in.	in.
Length of horn along curve of fronto-nuchal edge	40·25	21·40	26·10	24·40	18·50
Circumference at base	10·30	10·25	8·60	10·00	8·60
Circumference at one half of length	9·20	8·15	7·50	7·90	6·30
Breadth of horns at widest portion, in a straight line	25·00	23·80	22·40	21·00	17·00
Distance from tip to tip, in a straight line	5·30	21·00	12·20	12·80	11·00

We have given a description of the colour &c. of Danford's Cilician examples in our former paper; the typical skins of Blyth agree perfectly with them. The males in both cases have no white saddle-mark; and the females are hornless.

Dr. Strauch informs us that the original type specimen of S. G.

Gmelin's "Orientalische Schaaf"[1] is still preserved in the St.-Petersburg Museum. In his opinion it is quite distinct from *O. gmelini*, but agrees with specimens received from North Persia. According to this view (as to which we have no material to found a personal opinion upon), the synonymy of the Asia-Minor and Cyprian Wild Sheep would appear to be as follows:—

Ovis gmelini.

Ovis gmelini, Blyth, P. Z. S. 1840, pp. 69, 78 (descr. orig.); ejusd. Journ. As. Soc. Beng. x. pt. 2, p. 886; Fraser, Zool. Typ. pl. xxi. [Based on the Erzeroom specimens now in the British Museum; but Gmelin's "Orientalische Schaaf" is regarded as identical.]

Ovis anatolica, Valenciennes, Rev. et Mag. Zool. 1856, p. 346 (descr. orig.); ejusd. Compt. Rend. Ac. Paris, xliii. p. 56; de Tchihatcheff, As. Mineure, 2me ptie p. 727, pl. iv.

Hab. Erzeroom (*Dickson & Ross, Mus. Brit.*); Bulgar Dagh (*Tchihatcheff, Mus. Par.*); Cilician Taurus (*Danford, Mus. Brit.*).

Ovis ophion.

Ovis musimon, var. β, *orientalis*, Brandt & Ratzeburg, Mediz. Zool. i. p. 54, pl. ix. figs. 1 & a (descr. orig., 1828, nec Schreber).

Ovis ophion, Blyth, P. Z. S. 1840, pp. 73, 78 (ex Brandt & Ratz.); ejusd. Journ. As. Soc. Beng. x. pt. 2, p. 887.

Ovis cyprius, Blasius, Säugeth. Deutschl. p. 473, figs. 251, 252 (ex Br. & Ratz.).

Hab. Cyprus (*v. Sack, Mus. Berol.*).

We may remark that our national collection does not yet possess a specimen of this latter Wild Sheep, which is supposed to be peculiar to our "youngest dependency."

30. *Sciurus syriacus, Hemp. & Ehr. *Dereek, Kallay.* D. & A., no. 26.

31. *Spermophilus xanthoprymnus (Benn.). *Arab-tauochan.* D. & A., no. 27.

Many more specimens were obtained of this little-known Souslik, which was fully described in our first paper; those which were preserved show a remarkable uniformity both in proportions and coloration. The species swarms over the whole barren district of the interior, from Kaisariyeh to Eski-Shehir. A Souslik from Ok Meidan, in European Turkey, obtained through the late Mr. Pearse of Constantinople, proves to be *S. citellus* (Linn.); probably the Bosphorus is the limit between the ranges of the two species. Other animals, apparently belonging to this genus, were observed on the banks of the river Sakaria (Sangarius); these were grey in colour, with pale-yellow breasts, but unfortunately no specimens were procured.

[1] Reise d. Russsl., iii. p. 486, pl. lv.; =*Ægoceros musimon*, Pallas, Zoogr. Ross. As. i. p. 230, pl. xix. fig. 7 (part. nec Schreber); =*Ovis orientalis*, Keyserling & Blasius, Wirbelth. Europ. pp. v, 29 (part., 1840), Blasius, Säugeth. Deutschl. p. 472, figs. 249, 250.

[Arctomys, sp.? D. & A., p. 278.

Danford again failed to obtain any species of true Marmot, either in the Taurus, where Ainsworth asserts their existence, or elsewhere.]

[†Castor fiber, Linn.

Very trustworthy authorities at Kaisariyeh told Danford that in the marshes between that place and Indjesu there existed an animal like an Otter, but which had a broad hairless tail. This description points pretty directly to the Beaver, an animal which still exists in the Euphrates near Aleppo[1], and in the rivers of the Caucasus[2]. The species is included in Smarda's list of the Mammals of Mesopotamia[3], and, though "with some doubt," in Mr. Blanford's Fauna of Persia[4].]

32. *Myoxus dryas (Schreb.). D. & A., no. 28.

33. *†Gerbillus erythrurus, Gray.

A Gerbille was obtained from the stony hill-sides at Kaisariyeh, where the species is reported to be common. It agrees with Gray's types (though not with his description[5]) and with Major St. John's South-Persian specimens[6], now in the British Museum, in all essentials, but is of a darker and richer rufous above; the lower parts are strongly tinged with yellow; and the elongated hairs on the upper surface of the tip of the tail are rather brown than blackish. The measurements of this specimen, an adult male preserved in spirits, are as follows:—

	inches.
Length of head and body.....	5·25
,, tail	5·75
,, ear	·70
,, hind foot	1·35

The skull is unfortunately much shattered; and the molars are so worn that their pattern is somewhat indistinct. We do not feel any doubt, however, of the identity of the specimen with this species, whose range appears to extend from Afghanistan, through Southern Persia, to Asia Minor.

34. Cricetus frumentarius, Pall. D. & A., no. 33.

35. *Cricetus nigricans, Brandt. D. & A., no. 34.

[? Cricetus accedula (Pall.). D. & A., no. 35.

In our first list we introduced this species on the faith of the report on one of Dickson and Ross's collections from Erzeroom, where the house-haunting Hamster of Asia Minor is identified as *C. accedula*[7]. The examination of a large series now proves, however, that

[1] Travels of Dr. and Mme. Helfer (English ed., 1879), i. p. 221.
[2] Eichwald, Nouv. Mém. Soc. Nat. Mosc. vii. p. 36.
[3] Geogr. Verbr. der Thiere, p. 408. [4] East. Persia, ii. p. 51.
[5] Ann. Mag. Nat. Hist. x. p. 266 (1842, descr. orig.).
[6] *Cf.* Blanford, East. Persia, ii. p. 70. [7] P. Z. S. 1839, p. 122.

it is referable to the next species; and there appears to be no other evidence of the occurrence of *C. accedula* in Asia Minor.]

36. *†Cricetus phæus, Pall. *Kara-guz.*

Abundant in houses at Kaisariyeh. Those caught generally had their pouches stuffed with dry pigeon-droppings. It was remarkable that none of these Hamsters ventured into Danford's traps until the house had been cleared of Mice; apparently the latter, in spite of their smaller size, have the upper hand in the murine polity.

[Mus rattus, Linn. D. & A., p. 279.]

37. Mus decumanus, Pall. D. & A., no. 29.

[Mus abbotti, Waterh.

Under this name Mr. Waterhouse described a Mouse sent many years ago to this Society from Trebizond by Mr. Keith E. Abbott[1]. His type is not to be found in that portion of the Society's collection which passed to the British Museum; and we can only direct the attention of collectors to his original description. The animal is stated to have been smaller than a Harvest-Mouse (length of head and body 1 inch 3 lines, of tail 1 inch 11 lines), and of a deeper colour than *Mus musculus*. Had the description been given by any less trustworthy writer, we should have had little hesitation in regarding it as having been founded on a young individual of that species.]

38. *Mus musculus, Linn. *Sytchan.* D. & A., no. 30.

Specimens of the common House-Mouse were obtained in various towns and villages, including Oroul, near the Euphrates, where the range of this species overlaps that of *M. bactrianus*. These vary considerably in size and in intensity of colour—some, like the example mentioned in our first paper, being very pale in tint, while others are small and usually dark. Two House-Mice from a village in the Giaour-Dagh are so peculiar in coloration that at first sight they appear to belong to quite a distinct species, their upper parts being of a light fawn which passes insensibly into the still paler and more yellowish fawn of the belly. But we can find no structural differences whatever; and an English variety of *M. musculus* almost identical in tint is preserved in the British Museum.

39. *†Mus bactrianus, Blyth.

Of this species, which is probably, as Mr. Blanford remarks, "the House-Mouse of the extreme north-west of India, Kashmir, Afghanistan, Baluchistan, and Southern Persia," specimens were trapped at Oroul, on the Euphrates, along with *M. musculus*, thus showing that its range extends considerably further west than has hitherto been supposed. Two examples which were preserved agree well with Mr. Blanford's excellent description and figure[2], and with his Persian specimens in the British Museum, only differing in having slightly shorter tails. Measurements (in spirits):—

[1] P. Z. S. 1837, p. 77. [2] East. Persia, ii. pp. 56, 57, pl. v. fig. 2.

	inches.	inches.
Length of head and body	3·50	3·00
,, tail	2·70	2·63
,, ear.....	·50	·45
,, hind foot	·70	·64

Dr. Severtzoff named the House-Mouse of Turkestan "*Mus wagneri β. major* (*M. tomak*?, n. sp. ?)"[1] without describing it; and Mr. Blanford has separated the form found in the east of the same country as *M. pachycercus*[2]; both of these, if distinct, are certainly closely allied to *M. bactrianus*.

40. *Mus sylvaticus, Linn. *Yaban-sytchan.* D. & A., no. 31.

41. *Mus mystacinus, Danf. & Alst. *Dagh-sytchan.* D. & A., no. 32.

Danford did not meet with this Mouse on his last expedition, not having been able to collect in any suitable localities.

42. †Arvicola socialis, Pall.

To this species we are inclined to refer two small Voles which were sent by Messrs. Dickson and Ross from Erzeroom to this Society, and which are now in the British Museum: they agree well both in dentition and proportions with Keyserling and Blasius's subgeneric and specific diagnoses[3], and fairly with Schreber's description[4], although their tails can hardly be said to be white. The *Arvicolæ* of Western Asia and Eastern Europe are so little known, either from well-preserved specimens or accurate descriptions, that it is at present impossible to clear up the relationship between *A. socialis* and some other nominal species, such as *A. micrurus* (S. G. Gm.), *A. mystacinus*, Ménétriés, and *A. syriacus* (Licht.). But when we remember the variability of the better-known European and American Voles, it appears not unlikely that these will prove to be merely races or varieties of Pallas's species.

43. *†Arvicola guentheri, sp. n. (Plate V.)

?*Arvicola leucura*, Severtzoff, Turkest. Jevotnie, p. 82 (1873, descr. orig., nec Gerbe).

It is not with a light heart that we venture to add to the long list of described species of *Arvicola*; but two specimens of a Vole, which Danford found abundantly in the marshes below Marash, present such striking characters that no choice is left to us. The following is a detailed description of the animal, which belongs to Blasius's subgenus *Arvicola* proper, characterized by the first lower molar having *nine* and the second upper molar *four* cemental prisms[5].

[1] Turkestanskie Jevotnie, pp. 61, 82; Ann. & Mag. Nat. Hist. (4th ser.) xviii. p. 53. *M. wagneri*, Eversmann (Bull. Soc. Imp. Moscou, xxi. 1re partie, p. 191), is usually considered to be a synonym of *M. minutus*, Pall.

[2] J. As. Soc. Beng. xliv. pt. 2, p. 108; 2nd Yarkand Mission, Mamm. p. 53, pl. ix. fig. 2, pl. x.*b*. fig. 4.

[3] Wirbelth. Eur. pp. 33, 34.

[4] Säugth. iv. p. 682.

[5] Säugeth. Deutschl. p. 374.